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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,936	04/19/2005	Andries Pieter Hekstra	NL 021046	4503
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EXAMINER				
PATEL, DHAVAL V				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,936

Applicant(s)

HEKSTRA ET AL.

Examiner

DHAVAL PATEL

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-893)
Paper No(s)/Mail Date 4/19/2005

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 5 is objected to because of the following informalities:

Regarding claim 5, claim dependent upon claim 5 itself. The claim can not be dependent upon itself. This problem could be corrected by replacing "claim 5" in line 1, with "claim 2".

Appropriate correction is required.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The disclosed specification should follow the above mentioned arrangement of specification.

Appropriate corrections are required.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. **Claim 10** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding claim 10, a "processor program product" is being recited; however, a computer program product would reasonably be interpreted by one of ordinary skill in the art as software per se. This subject matter is not limited to that which falls within a statutory category of invention. Software is functional descriptive material and functional descriptive material is non-statutory subject matter.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-
(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent; or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English.

6. Claims 1, 7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Wolf et al. (US 6,996,765) (hereafter Wolf).

Regarding claims 1,7 and 9, Wolf discloses a sliding-window method and decoder (abstract) for decoding at least one block of symbols and comprising a processor-system for processing main-windows each comprising one or more symbols and for processing prolog-windows each comprising one or more symbols, which processor-system comprises:

at least one prolog deriving process (Fig. 5, prolog window, col. 3 lines 49-50) for deriving at least one initial parameter for at least one prolog-window (col. 5, summary of invention, lines 23-27 discloses providing initialization in prolog section to improve signal to noise ratio, col. 3 lines 60-62, col. 4 lines 31-43 discloses states are initialized for a sliding window),

at least one main deriving process (Fig. 5, sliding window process) for deriving at least one main parameter for at least one main-window (Fig. 5, sliding window is

construed as main window) thereby using at least one initial condition (col. 6, line 38, bit error rate) defined by said at least one initial parameter (col. 6 lines 18-20 discloses prolog initialization in alpha matrix sliding window and beta matrix sliding window {

Interpretation:- Thus alpha matrix sliding window and beta matrix sliding window state both has prolog window with initialization parameter, thus both sliding window must derive the sliding window parameter based on prolog window parameters), and

at least one generating process for generating at least one data estimate value by processing said at least one main parameter (col. 7 lines 12, decoded results from MAP, col. 9 lines 64-65 discloses calculating extrinsic values from alpha state matrix and beta state matrix, extrinsic values are construed as "data estimate value"),

wherein said processor-system comprises: -

at least one defining process (col. 6 lines 35-38) for defining at least a first prolog-window comprising a first number of symbols (col. 6 lines 40) and at least a second prolog-window comprising a second number of symbols (col. 6 lines 41), which first number and second number are different from each other and unequal to zero (col. 6 lines 38-42) {Interpretation:- different sizes of prolog for alpha and beta slicing windows has been performed, thus the process must have defining process to define the sliding window having different sizes of prolog window in different iterations and different sizes of prolog window contains different number of symbols, col. 6 lines 41-42 discloses that the number would be zero because of worst performance}.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (*See MPEP Ch. 2141*)

- a. Determining the scope and contents of the prior art;
- b. Ascertaining the differences between the prior art and the claims in issue;
- c. Resolving the level of ordinary skill in the pertinent art; and
- d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

8. Claims 2, 4, 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al.

Regarding claims 2,4 and 8 , Wolf does not explicitly discloses the sliding-window decoder (abstract) according, wherein said defining process further defines at least a third prolog-window comprising a third number of symbols, with said first, second and third prolog-windows neighboring the same main-window in a first, second and third iteration, and with said first number being smaller than said second number and with said second number being smaller than said third number and said first number has got a minimum value and said third number has got a maximum value and said second number has got an intermediate value.

However, Wolf discloses the multiple iterations to achieve good performance and also Wolf discloses the prolog defining process in which three different sizes of prolog windows were tested and evaluate the bit error rate and frame error rate for 8 iterations (col. 6 lines 34-44). Furthermore, Wolf discloses that scaling of prolog initialization according to the SNR of the extrinsic (data estimate) would improve the results (col. 8 lines 25-31). It would be easily recognized to one of ordinary skilled in the art that first, second and third prolong windows could be of different sizes and could be used in different iterations.

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to generate multiple prolog windows with different or flexible sizes in different iterations to achieve better results and also to achieve good bit error rate and frame error rate, as is well-known in the art.

Regarding claim 5, Wolf further discloses the sliding-window decoder (abstract), wherein said sliding- window decoder is Maximum-A-Posteriori-based and/or Viterbi-based (col. 1 lines 59-62, MAP decoder)

Regarding claim 6, Wolf further discloses a system comprising an encoder (col. 1, line 22, turbo encoder) for encoding at least one block of symbols (col. 1 line25-30) and comprising a sliding-window decoder (abstract) as defined by Claim 1, wherein said encoder is a turbo encoder (col. 1 line 22, turbo encoder) and/or wherein said sliding-window decoder is a turbo sliding-window decoder (col. 1 lines 59-6, MAP decoder).

9. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf in view of Gatherer et al. (US 2001/0046269) (hereafter Gatherer) (see IDS).**

Regarding claim 3, Wolf discloses the sliding-window decoder (abstract), wherein said first, second and third prolog-windows are prolog-windows in subsequent iterations (col. 4 lines 56-57, multiple iterations of sliding windows with different sizes, col. 4 lines 31-43) and said first, second and third prolog-windows being situated before said main-window (col. 3 lines 60-65 discloses initialization or prolog windows)

However, Wolf is silent about having iterations in forward and backward direction.

In the same field of endeavor, Gatherer teaches bi-directionally processing of data according to the sequencing constraint in which sequencing of the data in first direction after first processing prolog elements and then sequentially processing the data in a second direction, after first processing prolog elements in second direction in accordance with sequencing constraint. (Fig. 1, Page 5, claim 3)

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention to combine the teachings of Gatherer, into the system of Wolf, as a whole, so as to perform multiple iteration having different sizes of prolog windows in both forward and reverse direction, the motivation is to improved data reliability at given signal to noise ration (page 1, [0003]).

10. **Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf in view of Landberg et al. (US 5,852,630) (hereafter Landberg).**

Regarding claim 10, claim discloses all the subject matter except for the method written by a processor program product.

However, Landberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in computer readable medium. The computer readable medium is an electronic, magnetic, optical or other physical device or means that can be contain or store computer program for use by or in connection with computer-related system or method (col. 3 lines 51-65). One skilled in the art would have clearly recognized the method of Wolf would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability and flexibility. Therefore, it would have been obvious to one of ordinary skilled in the art at the time of the invention was made to use the software as taught by Landberg in the Wolf in order to reduce cost and improve the adaptability and flexibility of communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patel Dhaval whose telephone number is (571) 270-1818. The examiner can normally be reached on M-F 8:30-6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. Customer Service can be

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reached at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Dhaval Patel/

Acting Examiner of Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611